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**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Application Number: 10/668,255
Filing Date: September 24, 2003
Appellant(s): HUNT ET AL.

Nilay S. Dalal
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 3/14/11 appealing from the Office action mailed 6/22/10.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:

Claims 1-11, 13-18 and 20 are pending and rejected in the application.

**(4) Status of Amendments After Final**

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

**(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

**(8) Evidence Relied Upon**

| | | |
|---|---|---|
| JP-402043362A | Ogata et al. | 02-1990 |
| US 2001/0032686A1 | Shindo et al. | 10-2001 |

Applicants Admitted Prior Art (AAPA), specifically paragraph [0007] of the instant specification.

Comparisons of Materials: Coefficient of Thermal Expansion, submitted by the Appellant on 5/21/10.

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

**Claims 1-11, 13-18 and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.**

The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Independent claims 1 and 18 recited the limitation "wherein the backing plate and the sputter target have similar coefficients of thermal expansion" this limitation is not explicitly taught by the original disclosure and constitutes new matter.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 1-11, 13-18 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The term "similar" in claims 1 and 18 is a relative term which renders the claim indefinite. The term "similar" is not defined by the claim, the specification

does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear to the examiner as to what constitutes "similar" coefficients of thermal expansion.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

**Claims 1-11, 13-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogata et al. (JP-402043362A) (hereafter Ogata) and Applicant's Admitted Prior Art (hereafter AAPA) in view of Shindo et al. (US 2001/0032686A1) (hereafter Shindo).**

Ogata teaches a disc shaped sputter target/backing plate assembly made by forming a plurality of segmented and spaced-apart ridges (3) within the surface of the periphery of the bonding surface of the backing plate (1) (Abstract; and Figures 2(1) and 2(2)). The ridges of Ogata inherently act as spacers/standoffs for the supply of soldering material between said backing plate and a sputter target. Ogata also teaches forming a sputter target with a substantially flat sputtering surface (2) and bonding surface, applying solder material (4) to the interface spaces and allowing the solder to solidify to form a

bond (abstract and figure 1). Ridges are circular, arcuate (identified as semicircular in the abstract) or polygonal (figures 3-1 to 3-4) with heights and widths of about 0.02 to about 0.06 inches with a distance between ridges (pitch) of up to about 0.4 inches (abstract). Columns 7-8 of Ogata teach known soldering alloys.

Ogata does not teach that the sputter target is a ferromagnetic material; and the plurality of segmented and spaced-apart ridges are machined; however, Shindo teaches soldering a ferromagnetic sputtering target to a backing plate (paragraphs 1 and 63-64; and table 1). Shindo also teaches the sputtering target is selected from the group comprising titanium, aluminum, copper, molybdenum, cobalt, chromium, ruthenium, rhodium, palladium, silver, iridium, platinum, gold, tungsten, silicon, tantalum, vanadium, nickel, iron, manganese, germanium, and alloys thereof (paragraphs 1 and 63-64; and table 1); the backing plate is selected from the group consisting of copper, aluminum, titanium, and alloys thereof (paragraph 64); and the solder is liquid or paste selected from the group comprising tin-lead, indium-tin, tin-silver, tin-copper, or tin-silver-copper (paragraph 64). It should be noted that the backing plate and sputter target materials taught by Shindo above exhibit similar coefficients of thermal expansion. The solder is liquid during the bonding process. Additionally, AAPA teaches providing machined grooves (paragraph 7). Consequently, it would have been obvious to one of ordinary skill in the art to machine the grooves/ridges of Ogata. Furthermore, the claim would have been obvious because a particular

known technique (machining grooves/ridges) was recognized as part of the ordinary capabilities of one skilled in the art.

At the time of the invention it would have been obvious to one of ordinary skill in the art to substitute the ferromagnetic sputter target material, the backing plate material and solder material as taught by Shindo for the materials of Ogata in order to form a sputter target/backing plate assembly which exhibits good magnetic properties and produces fewer particles during the sputtering process. Thus, the claim would have been obvious because the substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

**(10) Response to Argument**

With respect to the 112 first paragraph rejection, the Appellant argues that the Official Action maintains that the claimed feature added to independent claims 1 and 18 reciting "wherein the backing plate and the sputter target have similar coefficients of thermal expansion" allegedly lacks written description support. The Examiner bases the rejection on Appellants' failure to cite the claimed feature verbatim in their specification.

This reasoning, however, is inadequate as a matter of law. The law is well-established that the subject matter of a later claim need not be described with the exact, literal language of the earlier disclosure. *See, e.g., Martin v. Johnson,* 454 F.2d 746, 751 (CCPA 1972) (stating "the description need not be in *ipsis verbis*

[i.e., "in the same words"] to be sufficient"). The PTO Board decisions also follow suit. *See, e.g., Exparte Rodgers,* 27 USPQ2d 1738, 1743 n.11 (Bd. Pat. App. & Int'f 1992) ("It is not necessary that the claimed subject matter be described identically, but the disclosure originally filed must convey to those skilled in the art that the applicant had invented the subject matter later claimed."). What is necessary is not an identity of description but rather an identity of "that which is described." *New Railhead Mfg., L.L. C. v. Vermeer Mfg. Co.,* 298 F.3d 1290, 1295-96 (Fed. Cir. 2002). The identity of "that which is described" must reasonably convey to persons skilled in the art that the inventor had possession of the subject matter. *Fujikawa v. Wattanasin,* 93 F.3d 1559, 1570 (Fed. Cir. 1996). Accordingly, the proper inquiry for adequate written description does not depend on a particular claim format, but rather on whether the patent's description would show to those of ordinary skill in the art that the inventors possessed the claimed invention at the time of filing. The presumption of adequacy of the disclosure remains until the Examiner can prove to the contrary by a preponderance of the evidence. "The examiner has the initial burden of presenting by a preponderance of evidence why a person skilled in the art would not recognize in an applicant's disclosure a description of the invention defined by the claims." *See* MPEP §2163.04 *(citing In re Wertheim,* 541 F.2d 257, 263 (CCPA 1976)). This test has not been met by the requisite burden of proof.

Applying this written description requirement inquiry to Appellants' pending application reveals that Appellants had possession of the claimed subject matter as of their filing date. In addition, Appellants have previously

submitted on May 21, 2010, a listing of the coefficient of thermal expansions entitled "Comparison of Materials: Coefficient of Thermal Expansion" which shows comparable or overlapping ranges for the ferromagnetic materials previously claimed. The submission substantiates that those skilled in the art have known the coefficients of thermal expansion for these materials. Accordingly, the submission constitutes evidence that one of ordinary skill in the art would know Appellants' claimed ferromagnetic materials have similar coefficients of thermal expansion, as of the filing date of the present application.

The listed materials in the submission are consistent with the materials of the target and the backing plate that the Appellants describe in their specification. Appellants' specification at paragraph [0018] explicitly identifies the contemplated materials having the comparable or overlapping coefficients of thermal expansion which can be used to form the target and backing plate. This list formed part of the original disclosure as filed and constitutes a carefully crafted list of exemplary materials Appellants have always intended to use in their present invention. Moreover, Appellants recognize and distinguish their list of contemplated materials from preferred materials. To this end, Appellants provide a list of preferred material pairings for the sputter target/backing plate at paragraph [0018]. The preferred list of material pairings for the target and the backing plate are selected to have minimal differences in coefficients of thermal expansion to thereby facilitate "effective uniform thickness solder bonded interface" as recited in all the claims. The specification unmistakably guides those skilled in the art to pair various materials to arrive at the preferred sputter target/backing plate

combinations. Clearly, the specification supports the claimed recitation. Skilled persons in the art would recognize the materials claimed by the Appellants based on the written description. The fact that Appellants' claimed feature of similar coefficients of thermal expansion is not described with the exact, literal language of the earlier disclosure is not determinative of the issue of whether written support exists in the originally-filed specification. One of skill in the art would recognize that the contemplated and preferred list of materials provided by Appellants in the originally filed specification contain similar coefficients of thermal expansion. Accordingly, to maintain the written description rejection would let form triumph over substance and thereby eviscerate the claimed subject matter.

Further, the record as a whole unequivocally distinguishes the claimed subject matter from the prior art. Throughout the prosecution record, Appellants have provided remarks that distinguish themselves from Ogata et al. Ogata et al teaches a target assembly that incurs warpage, as a result of using materials having dissimilar coefficients of thermal expansion, but for interconnected channels continuously extending along the surface of the backing plate. Appellants have provided remarks emphasizing that they do not teach using materials with large differences in thermal expansion for the target and backing plate. Rather, Appellants teach materials having comparable or overlapping ranges of coefficients of thermal expansion to achieve the advantages mentioned in paragraph [0026], including "uniform thickness" at the solder bonded interface. Consequently, when "similar coefficients of thermal expansion" is interpreted in

view of the patent specification, the prior art, Appellants' remarks throughout the prosecution record including its May 21, 2010 submission, it is evident that one of skill in the art would recognize that Appellants had possession of inventive subject matter directed to a method of bonding a target to a backing plate having similar coefficients of thermal expansion as of the filing date of the application.

For the aforementioned reasons, the specification satisfies the written description standard such that one of skill in the art would be reasonably apprised of the scope of the invention. What is now claimed by Appellants is the same as what has always been disclosed in the specification. Consequently, the Examiner has not established a prima facie case for lack of written description.

The examiner strongly disagrees with the Appellant's position. The original disclosure does not mention the phrase "similar coefficients of thermal expansion". Instead paragraph [0018] of the specification provides a rather small list of materials for the backing plate and sputter target; however, the specification fails to correlate the materials of the backing plate and sputter target as having "similar coefficients of thermal expansion". By claiming the materials of the backing plate and sputter target as having "similar coefficients of thermal expansion" the applicant is clearly broadening the scope of coverage to other materials that are not supported by the original disclosure. Enlarging the scope of possible materials for the backing plate and sputter target past what is actually supported by the disclosure constitutes new matter. Furthermore, there is nothing in the original disclosure that positively defines the materials listed in

paragraph [0018] as being materials of "similar coefficients of thermal expansion". Thus, the Appellant's submission (Comparisons of Materials: Coefficient of Thermal Expansion), received on May 21, 2010, does not make up for the shortcomings of the original disclosure. It should also be noted that the Appellant has failed to persuasively provide the examiner with a location in the original disclosure as to where support for newly added limitation is found. Alternatively, the Appellant is relying on the submission (Comparisons of Materials: Coefficient of Thermal Expansion) to improperly supplement the original disclosure. Accordingly, the examiner has clearly established why a person skilled in the art would not recognize in the Appellant's disclosure a description of the invention defined by the claims and why the limitation of "similar coefficients of thermal expansion" constitutes new matter. *See* MPEP §2163.04 *(citing In re Wertheim,* 541 F.2d 257, 263 (CCPA 1976)).

With respect to the 112 second paragraph rejection, the Appellant argues that the Official Action maintains that the limitation "similar" added to independent claims 1 and 18 is allegedly indefinite for not providing the requisite degree of similarity. The Examiner seeks a more precise, quantifiable definition of "similar" that is not warranted by the law.

"The fact that claim language, including terms of degree, may not be precise, does not automatically render the claim indefinite under 35 U.S.C. § 112, second paragraph." MPEP 2173.05(b) (citing Seattle Box Co., v. Industrial

Crating & Packing, Inc., 731 F.2d 818 (Fed. Cir. 1984)). Rather, whether the claim language is sufficiently definitive under 35 U.S.C. § 112 depends on whether one of ordinary skill would understand what is claimed in view of the specification, the prior art and the prosecution record as a whole. Id. Moreover, the nature of the claimed subject matter must also be considered: "The degree of precision necessary for adequate claims is a function of the nature of the subject matter." Miles Labs., Inc. v. Shandon Inc., 997 F.2d 870, 875 (Fed. Cir. 1993). Within this contextual framework, if the claims reasonably apprise those skilled in the art of the scope of the invention, § 112 demands no more. Id.

On the basis of this legal standard for satisfying 35 U.S.C. § 112, second paragraph, the Examiner's insistence for a more precise meaning goes well beyond that required by the patent law. The requisite degree of similarity between the coefficients of thermal expansion has been demonstrated by Appellants' submission of May 21, 2010. The submission does not constitute new matter for the reasons mentioned above. Rather, it is merely evidence of what one of skill in the art has already known at the time of filing. The submission is not broadening the claim scope as Examiner contends, but, rather, merely serving to clarify with greater precision the claim scope of what Appellants have already shown and described in their original disclosure.

Notwithstanding Appellants' submission, the Examiner suggests that Appellants explicitly claim the materials listed in paragraph [0018] of the specification. See, Nov. 26, 2010 Official Action at p. 3. However, this suggestion

misses the mark. Specifying the exact materials in the claim is not determinative of the issue of whether the claims satisfy 35 U.S.C. § 112, second paragraph. The phrase "similar" is as precise as the subject matter permits, noting that the patent law does not require all possible materials corresponding to "similar" coefficients of thermal expansion be listed in the specification, let alone that they be listed in the claims. Appellants have the right to claim the invention in terms that would be understood by persons of skill in the field of the invention. Here, the claimed features of the invention would be understood by persons of skill in the art. The prosecution record has been sufficiently developed to allow a skilled artisan to realize what "similar" means. Moreover, Appellants already have provided general guidelines in the specification at paragraph [0018] for the contemplated materials along with a representative number of material pairings.

The Examiner's insistence that Appellants provide a list of materials in the claim or a numerical cutoff between their invention and the prior art is impractical. The degree of precision necessary for adequate claims as mentioned above is a function of the nature of the subject matter from the viewpoint of a skilled artisan. Appellants' invention does not reside in a magical number. Here, delineating the claims with a numerical boundary would be impractical because the subject matter of the claimed inventions are directed to a multitude of ferromagnetic target and ferromagnetic backing plate materials having similar coefficients of thermal expansions. "IT]he definiteness of the language must be analyzed-not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary

level of skill in the pertinent art." *In re Moore* (1971), 439 F.2d 1232, 1235 (CCPA 1971). One of ordinary skill in the art reading the claim certainly would understand the nature of the language reciting similar coefficients of thermal expansion in light of the specification, Appellants' submission on May 21, 2010, Appellants' remarks during prosecution and the prior art of record. Such comprehension is all that is required by 35 U.S.C. § 112, second paragraph.

Thus, Appellants' claims are not indefinite. The claims set out and circumscribe a particular area with a reasonable degree of precision and particularity from the standpoint of a skilled artisan in accordance with the law.

The examiner can not disagree more with the Appellant's position.

When a term of degree is used, such as “similar” there must be some standard for measuring that degree:

-The specification should provide some standard for measuring that degree; or

-There should be a standard that is recognized in the art for measuring the meaning of the term of degree.

Without a standard for measuring, the claim is indefinite because the boundaries cannot be determined.

Additionally, a subjective term, such as “similar” must be objectively measureable. The specification should provide some objective standard for measuring the scope of the term.

In the instant case, there is no standard provided in the specification or recognized in the art for establishing the boundaries of the term “similar”. In

addition, there specification fails to provide some objective standard for measuring the scope of the term “similar”. Accordingly, the claim is indefinite because the interpretation of the term “similar" depends solely on the subjective opinion of the person selecting the materials of the backing plate and sputter target. In other words, "similar coefficients of thermal expansion" is an arbitrary limitation that cannot be enforced and definitively interpreted. Furthermore, without concisely explaining the limitation "similar coefficients of thermal expansion" in the specification it is impossible for one of ordinary skill in the art to determine what actually constitutes "similar coefficients of thermal expansion". Since the metes and bounds of the limitation are unclear one of ordinary skill in the art is unable conclusively quantify what material combinations meet the limitation. Thus, the scope of the "similar coefficients of thermal expansion" limitation is indefinite.

In the Advisory Action, mailed on 11/26/10, the examiner recommended that the applicant explicitly claim the materials of the backing plate and sputter target to overcome the rejections under 112 first and second paragraph. The Appellant elected to appeal the 112 first and second paragraph rejections.

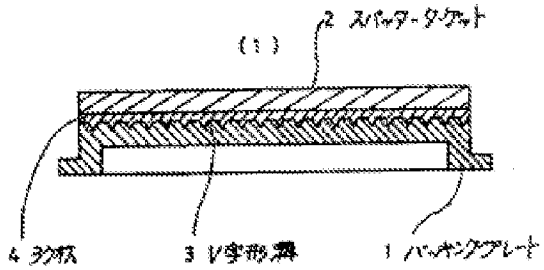
With respect to the 103 rejection of claims 1-11, 13-18 and 20, the Appellant argues that claims 1-11, 13-18 and 20 stand rejected under 35 U.S.C. §103(a) as allegedly being obvious over Ogata et al in view of AAPA and further in view of Shindo et al.

Appellants have discovered a unique method for bonding a sputter target to a backing plate to eliminate the problems of non-uniform thickness at the bonded interface. The method utilizes forming a backing plate having segmented and spaced apart ridges on its bonding surface that act as spacers/standoffs to accommodate the supply of solder material therebetween. Further, the sputter target and the backing plate are formed from materials having similar coefficients of thermal expansion. The solder material is applied to the interfaces which are defined by superimposing the sputter target onto the ridges of the backing plate. The solder material thereafter penetrates between the ridges to produce a solder interface with uniform thickness.

Ogata et al is directed to an entirely different method for bonding a sputter target to a backing plate that is designed to eliminate an entirely different problem of warpage. Unlike Appellants' invention, the method of Ogata et al utilizes a brazing material to join a sputter target with a backing plate. As opposed to the claimed ferromagnetic materials with similar coefficients of thermal expansion, the sputter target and backing plate utilized in Ogata et al are non-ferromagnetic materials that have large differences in thermal expansion. Specifically, Ogata et al discloses the use of rare earth materials bonded to copper.

The examiner respectfully disagrees as the methods of Ogata and the instant application are extremely similar. Initially the examiner would like to point out the physical similarities between the backing plate/sputter target assemblies of Ogata and the instant application.

Ogata: Instant application:



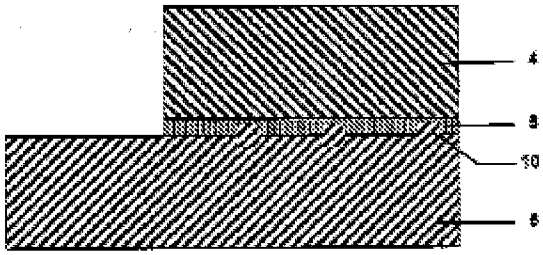


Fig. 2

As it is clearly seen in these figures the backing plates of Ogata and the instant application have segmented and spaced apart ridges disposed on and within the periphery of the bonding surface of the backing plate.

The applicant continues to refer to the process of Ogata as a brazing process; however, as the examiner has pointed out several times during the prosecution of this application the filler/bonding material of Ogata is actually a soldering composition. Even though the abstract of Ogata states "brazing", a closer look at the specification (columns 7 and 8) of Ogata clearly indicates that soldering is the bonding process being used to join the sputter target to the backing plate. Specifically, Ogata teaches Sn-Ag and Sn-Pb compositions in column 7 and a 90Sn-10Ag (wt%) composition with a melting temperature of 260℃ in column 8. By definition these are soldering compositions.

The examiner agrees that Ogata teaches that the grooves of the backing plate are to obviate the generation of warpage and deformation. Ogata does not

explicitly teach that the ridges that are formed by the grooves act as spacers/standoff for the supply of solder material between said backing plate and a sputter target. However, the structure of Ogata and the instant application are so similar that one of ordinary skill in the art would predictably recognize that the ridges of Ogata will inherently act as spacers/standoffs during the soldering process. There is absolutely no reason for the artisan to believe that a sputter target/backing plate assembly with such a similar ridged structure will not act as spacers/standoffs for the supply of solder material between a backing plate and a sputter target. Furthermore, the applicant has failed to provide a persuasive argument or evidence that the ridges of Ogata will not act as spacers/stand-offs. Thus, the examiner maintains the position that the ridges of Ogata inherently act as spacers/standoffs for the supply of soldering material between the backing plate and the sputter target. In other words, the structure of the ridges of Ogata is so similar to that of the instant application that one of ordinary skill in the art would expect the ridges of Ogata and the instant application to function in the same manner. Thus, even through Ogata explicitly teaches using ridges to control warpage, the ridges of Ogata will also aid in forming a uniform thickness solder bonded interface. The examiner is not relying on Ogata to teach a ferromagnetic sputter target. Instead the examiner is relying on Shindo to establish that it is obvious to manufacture sputter target/backing plate assemblies with ferromagnetic sputter targets.

The applicant also argues that as a result of these different processing conditions, Ogata et al and Appellants employ entirely different structures to

achieve their respective end objectives. Ogata et al relies on an interconnected network of channels (e.g., grooves or slots) that *continuously extend* along the surface of the backing plate to eliminate warping. *See* Ogata et al at Figures 2(1), 2(2) and 2(3). On the contrary, Appellants' *spaced apart and segmented* ridges, which are structurally distinct from Ogata et al's channels, are designed to accommodate the penetration of solder material therebetween to produce a uniform thickness at the bonded interface. As Figure 1 of Appellants' specification shows, the ridges 10 are discrete structures that do not extend continuously in either the radial direction or along the periphery of the backing plate. Ogata et al, on the contrary, relies on the continuous interconnected network of channels to eliminate warping as a result of the large differences in thermal expansion of the backing plate and the target. Indeed, all of the various channels contemplated by Ogata et al are continuous and interconnected. Figures 2(1) and 2(2) show channels which continuously extend from one edge to another edge of the backing plate surface. Figure 2(3) shows another channel design in which each channel extends continuously along the periphery of the backing plate. A side-by-side comparison of Figures 2(1) - 2(3) of Ogata et al with Figure 1 of Appellant's specification clearly shows these differences. The structures of Ogata et al are different from that of Appellants' because the nature of the problem to be solved by each during the bonding process is different. The continuous and interconnected channels of Ogata et al are designed to prevent warpage of materials with large differences in thermal expansion whereas the discrete ridges of Appellants are designed to allow penetration of material therebetween to

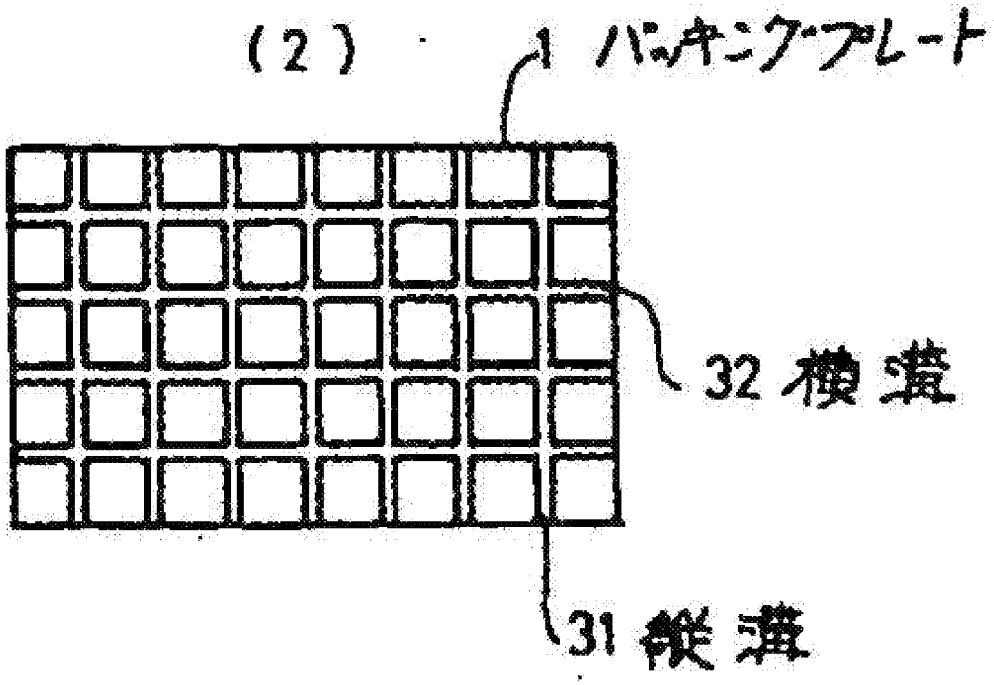
produce an interface with a uniform

thickness.

Notwithstanding these differences in the methods and the corresponding structures utilized to carry out the design objectives of each of the methods, the Examiner takes the position that the channels of Ogata et al inherently act as spacers/standoffs for the supply of soldering material. This reasoning is inadequate as a matter of law. The law of inherency requires that the descriptive matter expressly missing from the teachings of a prior art reference be necessarily present. "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.'" *See* M.P.E.P. §2112(IV) *(citing In re Robertson,* 169 F.3d 743,745 (Fed. Cir. 1999)) (emphasis added).

The examiner is not convinced by the Appellant's argument drawn to Ogata and the instant application employing entirely different structures and using different processing characteristics. As mentioned above, both Ogata and the instant application utilize soldering to bond a backing plate to a sputter target. The claims broadly require "a plurality of segmented and spaced-apart ridges". In view of the broadest reasonable interpretation, the ridges of Ogata are "segmented and spaced-apart". The Appellant is reminded that Ogata teaches non-continuous, segmented and spaced-apart checkerboard shaped ridges formed by vertical grooves 31 and horizontal grooves 32. Please see Figure 2

(2) below. Accordingly, the Appellant's argument drawn to the grooves of Ogata being continuous and an interconnected network of channels (e.g., grooves or slots) that *continuously extend* along the surface of the backing plate is unpersuasive since Ogata clearly teaches the claimed segmented and spaced-apart ridges. It should be noted that the claims are not limited to non-continuous ridges.




The claims are also not limited to a specific spaced-apart distance and the specification does not provide a concise definition as to what is meant by spaced-apart. Although it is important to understand that paragraph [0017] of the instant application states that: "The spacing of the ridges has to be sufficient to prevent bowing of the sputter target at the center, especially for thinner and large

diameter sputter targets." Since bowing in a solder bonded assembly is synonymous with warpage and deformation, the instant application is using the segmented and spaced apart ridges for the same reason as Ogata. Thus, the claim language does not structurally distinguish itself over the structure of Ogata. It should further be noted that the ridges of Ogata allow penetration of solder material there between to produce an interface with a uniform thickness. (please note figure 1 of Ogata, wherein there is solder material is clearly located between the ridges and the solder material has a uniform thickness across the entire interface between the backing plate and sputter target). For the reasons set forth above, the examiner maintains the position of inherency with respect to the process of Ogata as the examiner has clearly presented extrinsic evidence that makes clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.'" *See* M.P.E.P. §2112(IV) *(citing In re Robertson,* 169 F.3d 743,745 (Fed. Cir. 1999).

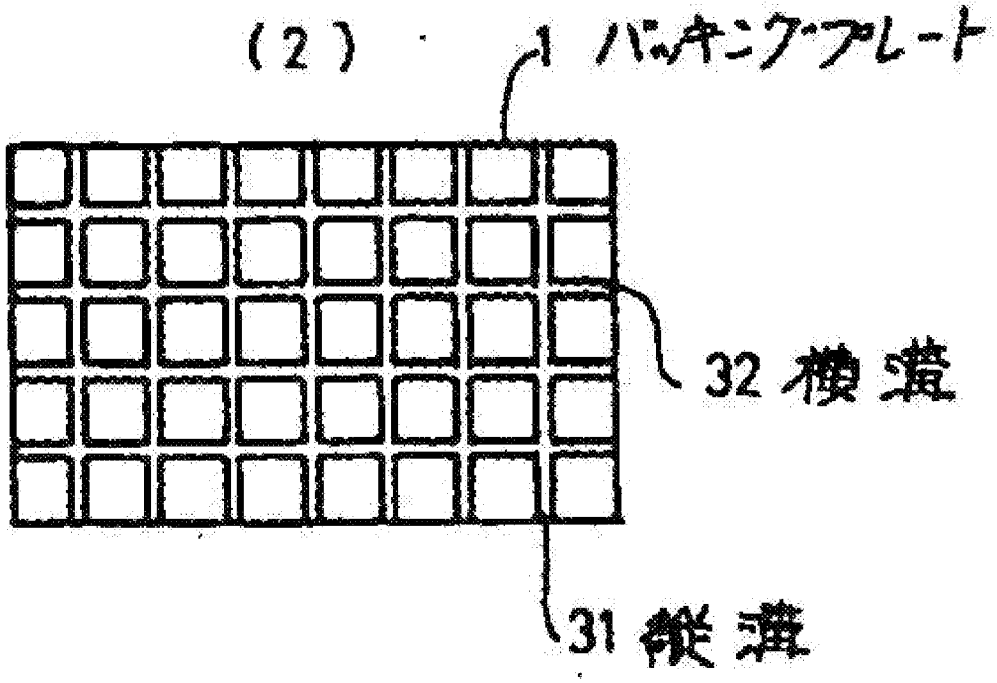
The applicant continues to argue that applying this inherency standard to Appellants' claimed inventions reveals that the Examiner has not provided any evidence that would reasonably support the conclusion that Appellants' allegedly inherent claimed features necessarily flows from the teachings of Ogata et al. As previously mentioned, the channels of Ogata et al cannot be reasonably interpreted to be the claimed ridges. The structure of the channels is entirely different from that of the ridges as Ogata et al is focused on solving an entirely different problem from Appellants. As a result of the structures being different, it

is not inherent that the channels of Ogata et al function as spacers/standoffs which accommodate the penetration of material therebetween to produce a uniform thickness at the bonded interface. Ogata et al and Appellants are related to different methods of bonding. Each method utilizes a different structure for carrying out the designed objectives thereof. Accordingly, the channels of Ogata et al do not inherently act as spacers.

Even if the channels of Ogata et al *may* act as spacers/standoff for the penetration of material therebetween, it is not sufficient as a matter of law to establish inherency. The fact that a certain result or characteristic may occur in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert,* 9 F.3d 1531, 1534 (Fed. Cir. 1993). The channels, unlike the ridges, are designed to prevent warpage arising from bonding target and backing plate materials with large coefficients of thermal of expansion. The channels are not designed to affect the uniformity of the bond between materials having similar coefficients of thermal expansion. Accordingly, the channels of Ogata et al would not be reasonably inferred by one of ordinary skill to function as spacers/standoffs. As a result, Ogata et al does not establish *a primafacie* case of obviousness, and the PTO has not met their burden of establishing inherency.

The examiner respectfully disagrees with the applicant's position for the reasons set forth above. Additionally, the examiner would like to point the

Appellant to figures 2(2) and 3(1-4) of Ogata, which depicts different ridge configurations suitable with the bonding process of Ogata.

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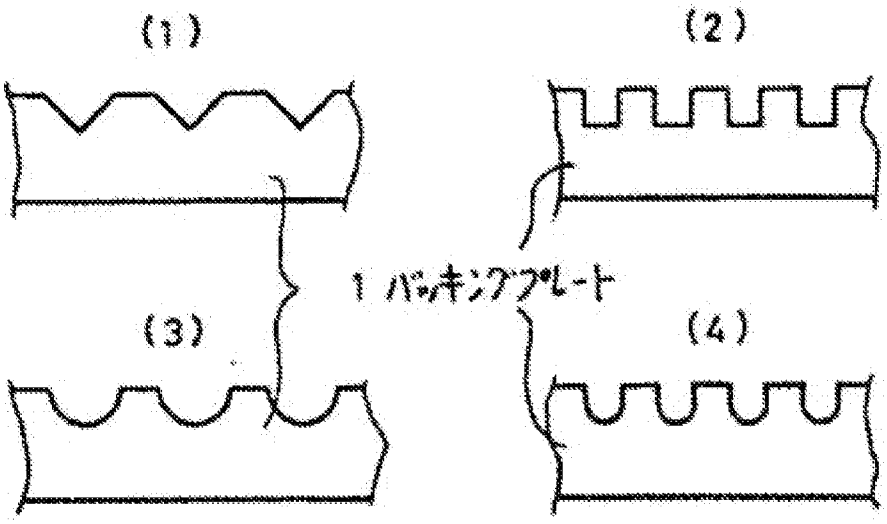

Clearly, in view of the broadest reasonable interpretation, one of ordinary skill in the art would consider the images depicted in figures 2(2) and 3(104) as a backing plate with a bonding surface having "a plurality of segmented and spaced-apart ridges."

The Appellant states that the alleged AAPA has been applied for teaching machining of grooves. Nonetheless, the alleged AAPA does not cure the deficiencies discussed in Ogata et al nor would it be combined with the teachings of Ogata eta al, but for the teachings in Appellants' present invention.

The examiner disagrees with the Appellant as the AAPA is not alleged and qualifies as a positive prior art teaching that clearly establishes that it is conventional to machine grooves.

The applicant additionally argues that Shindo et al relates to Ni-Fe sputtering targets for forming magnetic thin films. Specifically, Shindo et al relates to a Ni-Fe sputtering target for forming ferromagnetic thin films. Shindo et al at Col. 1, 11. 15-18. Shindo et al has been applied for purportedly disclosing that the backing plate and the target are ferromagnetic materials having similar coefficients of thermal expansion. However, Ogata et al does not provide any suggestion to substitute its bonded materials with that of Shindo et al. Ogata et al is limited to the incorporation of channel structures along the backing plate to facilitate bonding of rare earth materials with copper by eliminating the problem of warpage caused by the bonding of such materials. These are materials with a large difference in thermal expansion. Ogata et al does not contemplate utilizing

ferromagnetic materials of similar thermal expansion. Incorporating the teachings of Shindo et al constitutes hindsight. Reconstructing Appellants' invention from hindsight is not permitted: " 'One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.' " *In re Fritch,* 972 F.2d 1260, 1266 (Fed. Cir. 1992) (citing *In re Fine,* 837 F.2d 1071, 1076 (Fed. Cir. 1988)).

Even if Shindo et al is combined with Ogata et al, albeit incorrectly, Shindo et al does not disclose or suggest the features lacking in either Ogata et al or the alleged AAPA, taken alone or together. Thus, even if combined in the manner suggested, one of ordinary skill in the art would not arrive at the presently claimed invention.

Accordingly, Appellants' utilize a unique combination of ridges and ferromagnetic materials with similar thermal expansion coefficients to manufacture a target assembly having a uniform thickness at the bonded interface. The method of manufacturing the target assembly as in the present invention is different from the applied art.

The examiner respectfully disagrees with the Appellant for the reasons set forth above and below. As stated in the obvious rejection under appeal:

> "At the time of the invention it would have been obvious to one of ordinary skill in the art to substitute the ferromagnetic sputter target material, the backing plate material and solder material as taught by Shindo for the materials of Ogata in order to form a sputter target/backing plate assembly which exhibits good magnetic properties and produces fewer particles during the sputtering process."

Additionally, the claim would have been obvious because the substitution of one known element (sputter target/backing plate materials of Shindo) for another (sputter target/backing plate materials of Ogata) would have yielded predictable results to one of ordinary skill in the art at the time of the invention (*KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007)).

It is important to understand that the examiner did not rely on Ogata for providing any suggestion to substitute its bonded materials with that of Shindo et al as suggested by the Appellant. To the contrary, the examiner relied on Shindo to provide the motivation for substituting the material of Shindo for the materials of Ogata. In addition to logically forming a sputter target with good magnetic properties, it would have also been obvious to substitute the materials of Shindo for the materials of Ogata in order to produce fewer particles during sputtering. This explicit motivation is found in paragraphs [0005], [0073] and [0076] of Shindo. Clearly, this explicit teaching provides the artisan with the motivation for the substitution of materials. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). The

examiner did not use hindsight reasoning in formulating the obviousness rejection. Accordingly, the examiner maintains that a proper *prima facie* case of obviousness has been established.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Kiley Stoner/

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